

Claims:

1. A lighting device comprising

- a plurality of groups of light emitting diodes, each of said groups of light emitting diodes containing one or more light emitting diodes, each of said light emitting diodes being configured so as to pass between an energized light emitting state and a non-energized state;
- luminosity measuring means for providing a standard luminosity reading at predetermined time intervals;
- controller means for transferring , at predetermined time intervals, in response to said standard luminosity reading, one or more of said groups of light emitting diodes between a first energized group wherein said light emitting diodes are in said energized light emitting state and a second non-energized group wherein said light emitting diodes are in said non-energized state.

2. A lighting device as claimed in claim 1, wherein said controller means is configured to maintain all of the light emitting diodes in said first energized group when a predetermined luminosity reading is provided by said luminosity measuring means.

3. A lighting device comprising

- a plurality of groups of light emitting diodes, each of said groups of light emitting diodes containing one or more light emitting diodes, each of said light emitting diodes being configured so as to pass between an energized light emitting state and a non-energized state;
- usage time measuring means for providing a usage time measurement for each of said groups of light emitting diodes at predetermined intervals;
- controller means for transferring, at predetermined time intervals, in response to said usage time measurements, one or more of said groups of light emitting diodes between a first energized group wherein said light emitting diodes are in said energized light emitting state and a second non-energized group wherein said light emitting diodes are in said non-energized state.

4. A lighting device as claimed in claim 1, wherein said controller means further comprises:

means for detecting whether any of said groups of light emitting diodes have become unable to pass between said energized light emitting state and said non-energized state, and transferring said groups to a third non-functional group.

5. A lighting device as claimed in claim 3, wherein said controller means further comprises:

means for detecting whether any of said groups of light emitting diodes have become unable to pass between said energized light emitting state and said non-energized state, and transferring said groups to a third non-functional group.

6. A lighting arrangement comprising:

two or more circuit board means, each circuit board means having a projection axis and a plurality of light emitting diodes, such that any light emitted by the light emitting diodes on each of said circuit board means is projected substantially parallel to said projection axis;

said circuit board means being disposed such that each of said projection axes are disposed at an angle to each other.

7. A lighting arrangement as claimed in claim 6, wherein said angle is from 5 to 15 degrees.

8. A network comprising:

a host computer; and

a plurality of light emitting diode lighting devices;

said host computer comprising:

means for transmitting a request for a status report from each of said light emitting diode lighting devices.

and

means for transmitting a signal to each of said light emitting diode lighting devices such that the host computer can direct how much light each of said lighting devices emits; and

each of said plurality of light emitting diode lighting devices comprising:

means for receiving a request for a status report from said host computer, creating said status report, and transmitting said status report to said host computer; and

means for receiving a signal from said host computer and altering how much light said light emitting diode device emits in response to said signal.

9. A network as claimed in claim 8, wherein said status report comprises current luminosity setting, current actual luminosity output, current light emitting diode degradation, current dirt accumulation, current number of light emitting diode groups in use, current number of open-circuited light emitting diode groups and current average usage time of light emitting diode groups;

10. A network comprising:

a host computer; and

a plurality of light emitting diode lighting devices;

said host computer comprising:

means for transmitting a signal to each of said light emitting diode lighting devices such that the host computer can direct how much light each of said lighting devices emits; and

each of said plurality of light emitting diode lighting devices comprising:

means for receiving a signal from said host computer and altering how much light said light emitting diode device emits in response to said signal.

- 5 11. A dirt detection system for a transparent surface, comprising:
an electromagnetic radiation emitting means for emitting light;
electromagnetic radiation measurement means for measuring light;

10 said electromagnetic radiation emitting means and said electromagnetic radiation measurement means
being configured such that said electromagnetic radiation emitting means emits a certain amount of
electromagnetic radiation through said transparent surface, and said electromagnetic radiation
measurement means measuring how much of said certain amount of electromagnetic radiation is
reflected by said transparent surface and comparing said amount to a base measurement taken when
said transparent surface is free of dirt.

12. A method for manipulating the light intensity in a tunnel, said tunnel comprising a lighting
system comprising a plurality of lighting devices, said method comprising means for raising and
lowering, in unison, the luminosity level of each of said devices